PATENT SPECIFICATION

DRAWINGS ATTACHED

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GB 847.354

Date of filing Complete Specification (under Section 3 (3) of the Patents Act, 1949) Oct. 1, 1956.

Application Date June 30, 1955. *No. 21177/56.*

(Divided out of No. 847,351).

Application Date July 9, 1956. *No. 21255/56.*

Complete Specification Published Sept. 7, 1960.

Index at acceptance:—Class 102(2), B3A3(C:D), B3B(11A:12).

International Classification:—F05d.

COMPLETE SPECIFICATION

Improvements in or relating to Containers for Liquids

We, JOSEPH SANKEY & SONS LIMITED, a British Company, of Albert Street, Bilston, Staffordshire, and ALONZO ROY TREVALLON BARNES, a British Subject, of 119, Trysull Road, Bradmoor, Wolverhampton, formerly of 43, Pleasant Grove, Shirley, Surrey, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to containers for liquids and is more particularly concerned with containers for holding a liquid (e.g. beer, or other beverage) together with gas or vapour under pressure.

It is an object of the invention to provide an improved container for liquid.

The invention provides a container for holding liquid together with a gas or vapour under pressure, which container is of substantially cylindrical or barrel shape and has the inner surfaces of one end wall concave and which container comprises a depression or recess formed in the inner surface of the said one end wall of the container so that, when the axis of the container extends vertically, liquid drains into the depression or recess, an aperture through the wall of the container, which aperture is spaced away from the said one end wall of the container and is provided with openable closure means, a tube positioned within the container and extending from adjacent the bottom of the depression or recess to communicate with the aperture through the wall of the container, and a second aperture through the wall of the container at or near the other end thereof, which second aperture is also provided with openable closure means.

Preferably the first said aperture is provided through the said other end wall of the container.

The tube is preferably linear and extends co-axially within the container between the depression or recess and the first said aperture, which depression or recess and aperture are respectively positioned centrally in the end walls of the container.

The closure means for the second aperture may comprise a gas inlet valve. The gas inlet valve may be provided with a tubular extension which extends to near the bottom of the container to enable gas to be introduced into the liquid in the container from near the bottom thereof.

Three specific constructions of containers embodying the invention will now be described by way of example. The first two constructions will be described with reference to the drawings accompanying Provisional Patent Application No. 21255/56, in which:—

Figure 1 is a longitudinal sectional view through one container and;

Figure 2 is a longitudinal sectional view through the second container,

and the third construction will be described with reference to the accompanying drawing in which:—

Figure 3 is a longitudinal sectional view through the third container.

In all three examples the container 11 is of substantially cylindrical shape and is made of stainless steel. The upper and lower end walls 12, 13 of the containers 11 are each slightly convex in shape and are substantially symmetrical about the longitudinal axis of the container. The top and bottom ends of the container are each provided with a substantially cylindrical reinforcing skirt 14 which surrounds the appropriate end of the container 11 and projects therebeyond. Each skirt

[Price

14 has its outer end edge 15 rolled inwardly to strengthen it, has an inwardly pressed flange 16 engaging against the periphery of the top or bottom wall of the container 11, has an outwardly pressed rolling rim 17 and is inwardly pressed at 18 to engage within a corresponding inwardly pressed part of the side wall of the container to retain the skirt in position.

In the first example the container is provided with a circular aperture 19 through an outwardly pressed flange 21 positioned centrally on the upper wall 12 of the container 11. This aperture 19 has a sleeve 22 encircling it, which is welded around the edge of the aperture 19 so that the sleeve 22 projects outwardly from the container 11. The sleeve 22 is internally threaded and has an inwardly projecting flange 23 around its inner end. The sleeve 22 supports a bush 24 which extends from the sleeve into the container and has at its outer end an outwardly projecting flange 25 which is threaded to engage with the internal thread on the sleeve 22. Two metal rings 26 spaced by a short, sleeve-like, rubber sealing washer 27, are interposed between the two flanges 23, 25, the bush 24 being tightened into position so that the rubber washer 27 is compressed to provide a seal. The upper metal ring 26 is L-shaped in section and the flange 25 on the bush is shaped to house the vertical limb of that ring. The lower metal ring 26 is generally rectangular in shape but has the face 28 which is directed towards the bush 24 inclined so that that face seats on a so-called "O-ring" 29 housed in an annular groove round the bush 24.

The inner end of the bush 24 is closed by a thick wall 31 having a central coarse-threaded passage 33 for the reception of a screw valve member 34 substantially as described in Specifications Nos. 449,764 and 670,977. The outer end of the bush 24 is provided with slots 35 to enable a bayonet-type connection to be made therewith to operate the valve member 34 substantially as described in those specifications.

The bush 24 has welded to its inner end a tubular extension piece 36 which encloses, with clearance the screw valve member 34. The upper end of a tube 37 which extends vertically and co-axially within the container 11, is received within the bore 38 of the extension piece 36 and is welded thereto. The lower end 39 of the tube 37 is cut obliquely and is positioned adjacent the bottom of a central, dish-shaped recess 41 in the bottom wall 13 of the container 11.

In the first example the second aperture 42 is formed through an outwardly pressed flange 43 positioned intermediate the centre and the periphery of the upper wall 12 of the container 11. The second aperture 42 is similarly encircled by a sleeve 44 welded to the container 11, which supports a bush 45 housing a screw valve closure member 46 as described in Specifications Nos. 449,764 and 670,977. Two metal rings 47 spaced by a short, sleeve-like, rubber sealing washer 48 are compressed between an external flange 49 on the bush 45 and an internal flange 51 on the sleeve 44, the lower metal ring 47 seating on a so-called "O-ring" 52 housed in an annular groove around the bush 45.

In this particular example the centres of the two apertures 19, 42 are spaced by a distance of 4½ inches, the overall height of the container 11 is 20⅜ inches, and the external diameter of the container 11 is about 15½ inches. The container 11 has a capacity of 9 gallons.

In the second example (Figure 2) the container 11 is again provided with a circular aperture 53 through an outwardly pressed flange 54 positioned centrally on the upper wall 12 of the container 11. This aperture 53 is encircled by a sleeve 55 as in the first example which supports a bush 56, extension piece 57, vertical tube 58, and screw valve member 59, sealing rings 61 being provided as described in that example. Again the lower end 62 of the vertical tube 58 is cut obliquely and is positioned adjacent the bottom of a central, dish-shaped recess 63 in the bottom wall 13 of the container 11.

The second aperture 64 in the second example is formed through an outwardly pressed flange 65 intermediate the centre and the periphery of the upper wall 12 of the container 11. This aperture 64 is smaller than the corresponding aperture 42 in the first example and is encircled by a sleeve 66, which is welded around the edge of the aperture 64 so that the sleeve 66 projects into the container 11. The sleeve 66 is internally threaded and receives a thick-walled, tubular member 67, the tubular member 67 having an external flange 68 around it which compresses a rectangular sectioned sealing washer 69 against the outer end of the sleeve 66, and being provided with recesses 71 to enable it to be screwed into place by means of a suitable tool.

The inner end of the tubular member 67 is formed as a nipple 72 over which is fitted a rubber non-return valve in the form of a soft rubber cap 73 having its closed end in the form of inclined walls 74 in wedge or chisel-point arrangement. A slit 75 is provided through one of these inclined walls 74, near and parallel to the pointed edge of the wedge. The outer end of the tubular member 67 is provided with an enlarged bore 76 and a removable sealing cap 77 screwed over that end.

In the second example the centres of the two apertures 53, 64 are spaced by a distance of 3-5/16 inches, the overall height of the container 11 is 18-3/16 inches, and the

external diameter of the container 11 is about 11¼ inches. The container 11 has a capacity of 5 gallons.

In the third example (Figure 3) the container 11 is again provided with a circular aperture 78 through an outwardly pressed flange 80 positioned centrally on the upper wall 12 of the container 11. This aperture 78 is encircled by a sleeve 79 as in the first and second examples, which supports a bush 81, extension piece 82, vertical tube 83, and screw valve member 84, all as aforesaid, sealing rings 85 being provided as described in the first and second examples. Again the lower end 86 of the vertical tube 83 is cut obliquely and is positioned adjacent the bottom of a central, dish-shaped recess 87 in the bottom wall 13 of the container 11.

The second aperture 88 in the third example is formed through an outwardly pressed flange 89 intermediate the centre and the periphery of the upper wall 12 of the container 11. The second aperture 88 is encircled by a short internally threaded sleeve 91, which is welded around the aperture 88 to extend into the container 11. A tubular valve-housing member 92 is threaded into the sleeve 91 and has an enlarged head 93 which compresses a rubber sealing ring 94 against the outer end of the sleeve 91. The valve-housing member 92 extends inwardly beyond the sleeve 91 and carries a straight tube 95 which extends, coaxially with the sleeve 91, to a position near the bottom 13 of the container 11. A thick-walled valve-carrier tube 96 is threaded into the valve-housing and has at its lower end a nipple 97 over which is fitted a rubber non-return valve 98 as described in the second example. The valve carrier 96 has an outwardly directed flange 99 which compresses a rubber sealing ring 101 against the head of the valve-housing member 92, and the outer end of the valve carrier 96 is provided with an enlarged bore 102 and externally threaded to receive a sealing cap 103.

The provision of two apertures through the wall of a container as above described, one of the apertures being spaced away from the bottom of the container and communicating with a tube having its inlet adjacent the bottom of the container, greatly facilitates the sterilization and filling of the containers. An example of a suitable system and apparatus for sterilizing containers and filling them with sterilized beverage is described and claimed in Specification No. 627,399.

In that specification there is described a method of filling containers under sterile conditions in which steam is passed into the container through an aperture situated at the top of the container and out through a second aperture at the bottom of the container. An inert gas, usually carbon dioxide, is then passed through the container in the same direction to blow out the steam and condensed liquid, and finally the sterile liquid is passed into the container through the second aperture, the gas displaced by the liquid passing out through the aperture at the top of the container. The provision of two apertures through the wall of a container, one at or near the top thereof, and the other connected by a tube extending to near the bottom of the container enables the container to be readily sterilized and filled.

The invention is not restricted to the details of the foregoing example. For instance, the aperture communicating with the tube may be positioned in the side wall of the container as described in co-pending Application No. 18983/55 (Serial No. 847,351). A gas reservoir may be attached to the container as described in co-pending Application No. 19798/56 (Serial No. 847,352).

WHAT WE CLAIM IS:—

1. A container for holding liquid together with a gas or vapour under pressure, which container is of substantially cylindrical or barrel shape and has the inner surfaces of one end wall concave, and which container comprises a depression or recess formed in the inner surface of the said one end wall of the container so that, when the axis of the container extends vertically, liquid drains into the depression or recess, an aperture through the wall of the container, which aperture is spaced away from the said one end wall of the container and is provided with openable closure means, a tube positioned within the container and extending from adjacent the bottom of the depression or recess to communicate with the aperture through the wall of the container, and a second aperture through the wall of the container at or near the other end thereof, which second aperture is also provided with openable closure means.

2. A container as claimed in Claim 1, in which the recess is circular in plan.

3. A container as claimed in Claim 1 or Claim 2, in which the depression or recess is positioned centrally in the end wall of the container.

4. A container as claimed in Claim 3, in which the first said aperture is provided through the other end wall of the container and is positioned centrally in that end wall of the container, and in which the tube is linear and extends co-axially within the container between the depression or recess and the first said aperture.

5. A container as claimed in any one of Claims 1 to 3, in which the first said aperture is provided through the other end wall of the container.

6. A container as claimed in Claim 4 or Claim 5, in which the second aperture is also formed through the said other end wall of the container.

7. A container as claimed in any one of Claims 1 to 6, in which the closure means for

the second aperture comprises a gas inlet valve.

8. A container as claimed in Claim 7, in which the gas inlet valve is provided with a tubular extension which extends to near the bottom of the container to enable gas to be introduced into the liquid in the container from the bottom thereof.

9. A container substantially as hereinbefore described with reference to and illustrated in Figure 1 or Figure 2 of the drawings accompanying Provisional Patent Application No. 21255/56 or Figure 3 of the accompanying drawings.

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Chartered Patent Agents.

PROVISIONAL SPECIFICATION
No. 21177, A.D. 1956.

Improvements in or relating to Containers for Liquids

We, JOSHPH SANKEY & SONS LIMITED, a British Company, of Albert Street, Bilston, Staffordshire, and ALONZO ROY TREVALLON BARNES, a British Subject, 43, Pleasant Grove, Shirley, Surrey, do hereby declare the invention, for which we pray a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to containers for liquids and is more particularly concerned with containers for holding a liquid (e.g. beer or other beverage) together with gas or vapour under pressure.

It is an object of the invention to provide an improved container of that kind.

The invention provides a container for holding a liquid together with gas or vapour under pressure, which container has a liquid-dispensing aperture provided with closure means and situated in a side wall of the container at a position spaced upwardly from the said dispensing aperture to near the bottom wall of the container.

The container is preferably of substantially cylindrical or barrel shape and the said dispensing aperture is preferably situated substantially mid-way between the top and bottom walls of the container. The bottom wall is preferably concave upwardly and the lower end of the delivery tube is preferably near the lowest part thereof so that substantially the whole liquid contents of the container may be dispensed through that tube under the pressure of gas or vapour in the container. A gas inlet is preferably provided to enable gas (e.g. carbon dioxide) to be introduced into the container and the gas inlet is preferably provided with a tube extending therefrom to near the bottom wall of the container to enable the gas to be introduced into liquid in the container from near the bottom thereof (e.g. so as to carbonate or acetate it or to increase its carbonation or aeration).

A specific embodiment of a container embodying the invention will now be described by way of example.

In this example the container is of substantially cylindrical shape and is made of stainless steel. It is formed from a central open-ended cylindrical part having circular dish-shaped top and bottom end parts butt-welded to it to provide dome-shaped top and bottom walls, the domes being substantially symmetrical about the axis of the cylinder. The top and bottom ends of the container are each provided with a substantially cylindrical reinforcing skirt which surrounds the appropriate end of the container and projects therefrom for about half the length of the skirt. Each skirt has its outer end edge rolled inwardly to strengthen it, has an inwardly pressed flange engaging against the periphery of the top or bottom wall of the container, has an outwardly pressed rolling rim and is inwardly pressed to engage within a corresponding inwardly pressed part of the side wall of the container to retain the skirt in position.

Between the inner ends of the two skirts, at a position mid-way between the top and bottom walls of the container, there is a circular aperture through the side wall. This aperture has a sleeve encircling it within the container and the sleeve is welded around the edge of the aperture. The sleeve is internally threaded and has an inwardly projecting flange around its inner end. The sleeve supports a bush which extends from the sleeve into the container and has at its outer end an outwardly projecting flange which bears against the flange of the sleeve, with a rubber sealing washer between the flanges, the bush being maintained in position by an externally screwed ring which is screwed into the sleeve to engage the outer end of the bush. This ring has recesses formed in its screwed face and extending to its outer end face to enable it to be screwed in by means of a suitable tool. The inner end of the bush is closed by a thick wall having a central coarse-threaded passage for the reception of a screw valve member, substantially as described in Specifications Nos. 449,764 and 670,977. The outer end of the bush is provided with slots to provide a bayonet-type connection with a dispensing tube and valve substantially as described in those specifications.

The bush has welded to its inner end an extension piece which encloses, with clearance, the screw valve member, and communicates

with a delivery tube which is welded to the end of the extension piece. The delivery tube bends downwardly through a right angle and its lower end continues along the axis of the container to near the central and lowest point of the bottom wall, the end of the tube being cut obliquely.

A similar bush and valve arrangement is provided in a sleeve upstanding from an aperture provided at the centre of the top wall of the container. In this case the bush is threaded into the sleeve and is provided with a rubber sealing ring which is compressed between two metal washers bearing against flanges on the bush and sleeve.

Between the centre and the periphery of the top wall of the container a gas inlet is provided. This comprises a small internally threaded sleeve welded around a circular aperture and extending into the container. A tubular valve-housing member is threaded into the sleeve and has a head which compresses a rubber sealing ring against the outer end of the sleeve. The valve-housing member extends inwardly beyond the sleeve and carries a straight gas inlet tube which extends, coaxially with the sleeve, to a position near to the bottom of the container. A thick-walled valve-carrier tube is threaded into the valve-housing and has at its lower end a nipple over which is fitted a rubber non-return valve in the form of a soft rubber cup having its closed end in the form of inclined walls in wedge or chisel-point arrangement. A slit is provided through one of those inclined walls, near and parallel to the pointed edge of the wedge. The valve-carrier has an outwardly directed flange which compresses a rubber sealing ring against the head of the valve housing, and the outer end of the valve-carrier is provided with an enlarged bore and a sealing cap which screws over that end.

The provision of the dispensing aperture in the side wall at a position spaced upwardly from the bottom wall of the container, as described, considerably facilitates the use of the container for dispensing beverages as a glass can be stood on the same surface as the container, underneath a valve and downwardly directed dispensing tube (e.g. as described in Specification No. 397,257) fitted to the bush as aforesaid. Further, when the container is stood on the floor with the valve and dispensing tube fitted to it, the dispensing tube is clear of the floor and there is sufficient space beneath that tube and the valve to enable people's feet to pass beneath them, thereby reducing or eliminating possibility of damage to the valve and tube due to accidental kicking of them.

The container may be employed, for example for containing carbonated beer. If it is desired to increase the carbonation of the beer, e.g. to increase the delivery pressure of the beer, a container of high pressure carbon dioxide gas (e.g. such as that available commercially under the Registered Trade Mark "Sparklet") may be coupled to the gas inlet through a pressure-reducing valve e.g. such as that described in Specification No. 685,858. For such coupling the gas inlet sealing cap may be removed and replaced by a screwed adaptor carrying a nipple for connection by a flexible tube to a nipple on the pressure reducing valve.

The valve-containing bush at the centre of the top of the container may be employed in sterilising and filling the container. If it is desired to increase the delivery pressure of the liquid without substantially increasing its carbonation the pressure gas supply may be connected to a nipple on an adaptor making a bayonet type connection with the bush at the top of the container.

The invention is not restricted to the details of the foregoing example. For instance, instead of being connected to the bush by an extension piece, the liquid delivery tube may carry at its upper end a casing which diverges from the tube to a cylindrical continuation which surrounds the bush and has an outwardly directed flange clamped between the flanges of the bush and sleeve.

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PROVISIONAL SPECIFICATION
No. 21255, A.D. 1956.

Improvements in or relating to Containers for Liquids

We, JOSEPH SANKEY & SONS LIMITED, a British Company, of Albert Street, Bilston, Staffordshire, and ALONZO ROY TREVALLON BARNES, a British Subject, of 43, Pleasant Grove, Shirley, Surrey, do hereby declare this invention to be described in the following statement:—

The invention relates to containers for liquids and is more particularly concerned with containers for holding a liquid (e.g. beer or other beverage) together with gas or vapour under pressure.

It is an object of the invention to provide an improved container for liquid.

The invention provides, in one of its aspects, a container for holding liquid together with a gas or vapour under pressure, comprising a tube positioned within the container and extending from adjacent the bottom thereof to communicate with an aperture through

the wall of the container, which aperture is spaced away from the bottom of the container and is provided with operable closure means, and a second aperture through the wall of the container, preferably at or near the top thereof, which second aperture is provided with operable closure means.

Preferably the container is substantially of cylindrical or barrel shape.

Preferably, the tube communicates with an aperture, as aforesaid, positioned in the upper wall of the container.

A container, as aforesaid, is described in co-pending Application No. 18983/55.

Three specific constructions of containers embodying the invention will now be described by way of example. The first two constructions are illustrated in the accompanying drawings, in which:—

Figure 1 is a longitudinal sectional view through one container and,

Figure 2 is a longitudinal sectional view through the second container.

In all three examples the container is of substantially cylindrical shape and is made of stainless steel. The upper and lower end walls of the container are each slightly outwardly convex and are substantially symmetrical about the longitudinal axis of the container. The top and bottom ends of the container are each provided with a substantially cylindrical reinforcing skirt which surrounds the appropriate end of the container and projects therefrom a distance of about half the axial length of the skirt. Each skirt has its outer end edge rolled inwardly to strengthen it, has an inwardly pressed flange engaging against the periphery of the top or bottom wall of the container, has an outwardly pressed rolling rim and is inwardly pressed to engage within a corresponding inwardly pressed part of the side wall of the container to retain the skirt in position.

In the first example the container is provided with a circular aperture through an outwardly pressed flange positioned centrally on the upper wall of the container. This aperture has a sleeve encircling it, which is welded around the edge of the aperture so that the sleeve projects outwardly from the container. The sleeve is internally threaded and has an inwardly projecting flange around its inner end. The sleeve supports a bush which extends from the sleeve into the container and has at its outer end an outwardly projecting flange which is threaded to engage with the internal thread on the sleeve. Two metal rings spaced by a short, sleeve-like, rubber sealing washer, are interposed between the two flanges, the bush being tightened into position so that the rubber washer is compressed to provide a seal. The upper metal ring is L-shaped in section and the flange on the bush is shaped to house the vertical limb of that ring. The lower metal ring is generally rectangular in shape but has the face which is directed towards the bush inclined so that that face seats on a so-called "O-ring" housed in an annular groove around the bush.

The inner end of the bush is closed by a thick wall having a central coarse-threaded passage for the reception of a screw valve member substantially as described in Specifications Nos. 449,764 and 570,977. The outer end of the bush is provided with slots to enable a bayonet-type connection to be made therewith to operate the valve member substantially as described in those specifications.

The bush has welded to its inner end a tubular extension piece which encloses, with clearance the screw valve member. The upper end of a tube which extends vertically and coaxially within the container, is received within the bore of the extension piece and is welded thereto. The lower end of the tube is cut obliquely and is positioned adjacent the bottom of a central, dish-shaped recess in the bottom wall of the container.

In the first example the second aperture is formed through an outwardly pressed flange positioned intermediate the centre and the periphery of the upper wall of the container. The second aperture is similarly encircled by a sleeve welded to the container, which supports a bush housing a screw valve closure member as described in Specifications Nos. 449,764 and 670,977. Two metal rings spaced by a short, sleeve-like, rubber sealing washer are compressed between an external flange on the bush and an internal flange on the sleeve, the lower metal ring seating on a so-called "O-ring" housed in an annular groove around the bush.

In this particular example the centres of the two apertures are spaced by a distance of $4\frac{1}{8}$ inches, the overall height of the container is $20\frac{3}{8}$ inches, and the external diameter of the container is about $15\frac{1}{8}$ inches. The container has a capacity of 9 gallons.

In the second example the container is again provided with a circular aperture through an outwardly pressed flange positioned centrally on the upper wall of the container. This aperture is encircled by a sleeve as in the first example which supports a bush, extension piece, vertical tube, and screw valve member, sealing rings being provided as described in that example. Again the lower end of the vertical tube is cut obliquely and is positioned adjacent the bottom of a central, dish-shaped recess in the bottom wall of the container.

The second aperture in the second example is formed through an outwardly pressed flange intermediate the centre and the periphery of the upper wall of the container. This aperture is smaller than the corresponding aperture in the first example and is encircled by a sleeve, which is welded around the edge of the aperture so that the sleeve projects into the con-

tainer. The sleeve is internally threaded and receive thick-walled, tubular member, the tubular member having an external flange around it which compresses a rectangular sectioned sealing washer against the outer end of the sleeve, and being provided with recesses to enable it to be screwed into place by means of a suitable tool.

The inner end of the tubular member is formed as a nipple over which is fitted a rubber non-return valve in the form of a soft rubber cap having its closed end in the form of inclined walls in wedge or chisel-point arrangement. A slit is provided through one of these inclined walls, near and parallel to the pointed edge of the wedge. The outer end of the tubular member is provided with an enlarged bore and a removable sealing cap screwed over that end.

In the second example the centres of the two apertures are spaced by a distance of 3-5/16 inches the overall height of the container is 18-3/16 inches, and the external diameter of the container is about 11¾ inches. The container has a capacity of 5 gallons.

In the third example the container is again provided with a circular aperture through an outwardly pressed flange positioned centrally on the upper wall of the container. This aperture is encircled by a sleeve as in the first and second examples, which supports a bush, extension piece, vertical tube, and screw valve member, all as aforesaid, sealing rings being provided as described in the first and second examples. Again the lower end of the vertical tube is cut obliquely and is positioned adjacent the bottom of a central, dish-shaped recess in the bottom wall of the container.

The second aperture in the third example is formed through an outwardly pressed flange intermediate the centre and the periphery of the upper wall of the container. The second aperture is encircled by a short internally threaded sleeve, which is welded around the aperture to extend into the container. A tubular valve-housing member is threaded into the sleeve and has an enlarged head which compresses a rubber sealing ring against the outer end of the sleeve. The valve-housing member extends inwardly beyond the sleeve and carries a straight tube which extends, coaxially with the sleeve, to a position near the bottom of the container. A thick-walled valve-carrier tube is threaded into the valve-housing and has at its lower end a nipple over which is fitted a rubber non-return valve as described in the second example. The valve-carrier has an outwardly directed flange which compresses a rubber sealing ring against the head of the valve housing, and the outer end of the valve-carrier is provided with an enlarged bore and externally threaded to receive a sealing cap.

The provision of two apertures through the wall of a container as above described, one of the apertures being spaced away from the bottom of the container and communicating with a tube having its inlet adjacent the bottom of the container, greatly facilitates the sterilization and filling of the containers. An example of a suitable system and apparatus for sterilizing containers and filling them with sterilized beverage is described and claimed in Specification No. 627,399.

In that specification there is described a method of filling containers under sterile conditions in which steam is passed into the container through an aperture situated at the top of the container and out through a second aperture at the bottom of the container. An inert gas, usually carbon dioxide, is then passed through the container in the same direction to blow out the steam and condensed liquid, and finally the sterile liquid is passed into the container through the second aperture, the gas displaced by the liquid passing out through the aperture at the top of the container. The provision of two apertures through the wall of a container, one at or near the top thereof, and the other connected by a tube extending to near the bottom of the container enables the container to be readily sterilized and filled.

The invention is not restricted to the details of the foregoing example. For instance, the aperture communicating with the tube may be positioned in the side wall of the container as described in co-pending Application No. 18983/55. A gas reservoir may be attached to the container as described in co-pending Application No. 19798/56.

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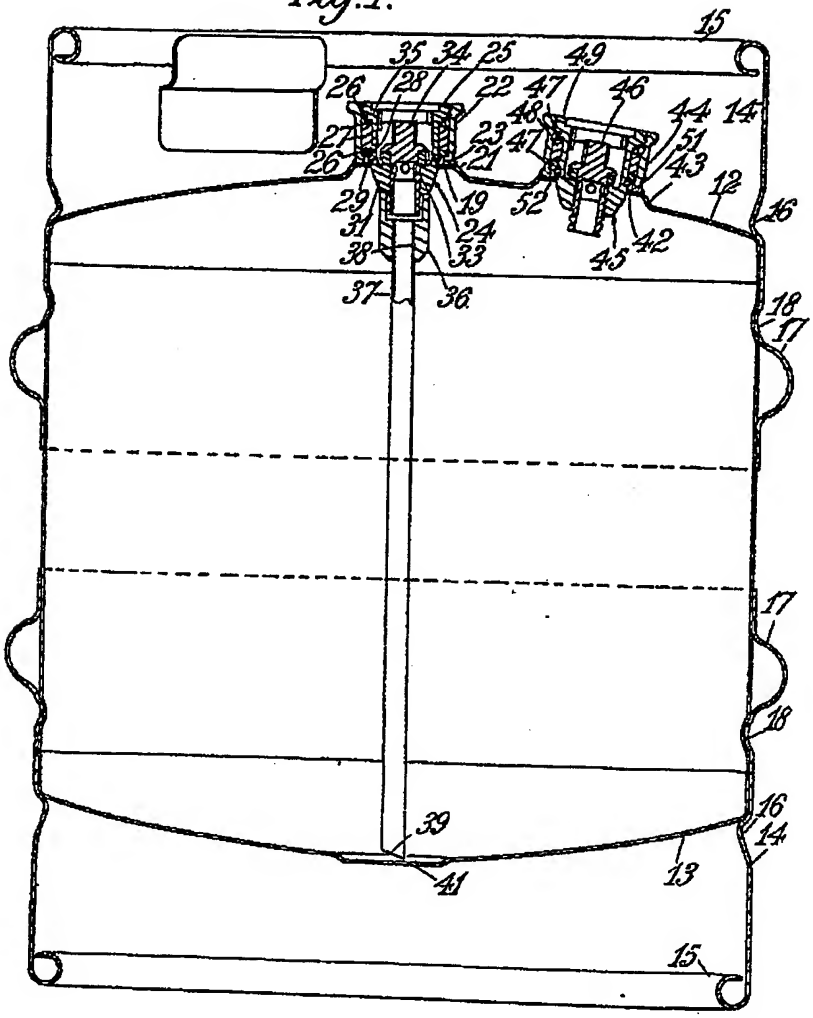
Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1960.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained

Fig.1.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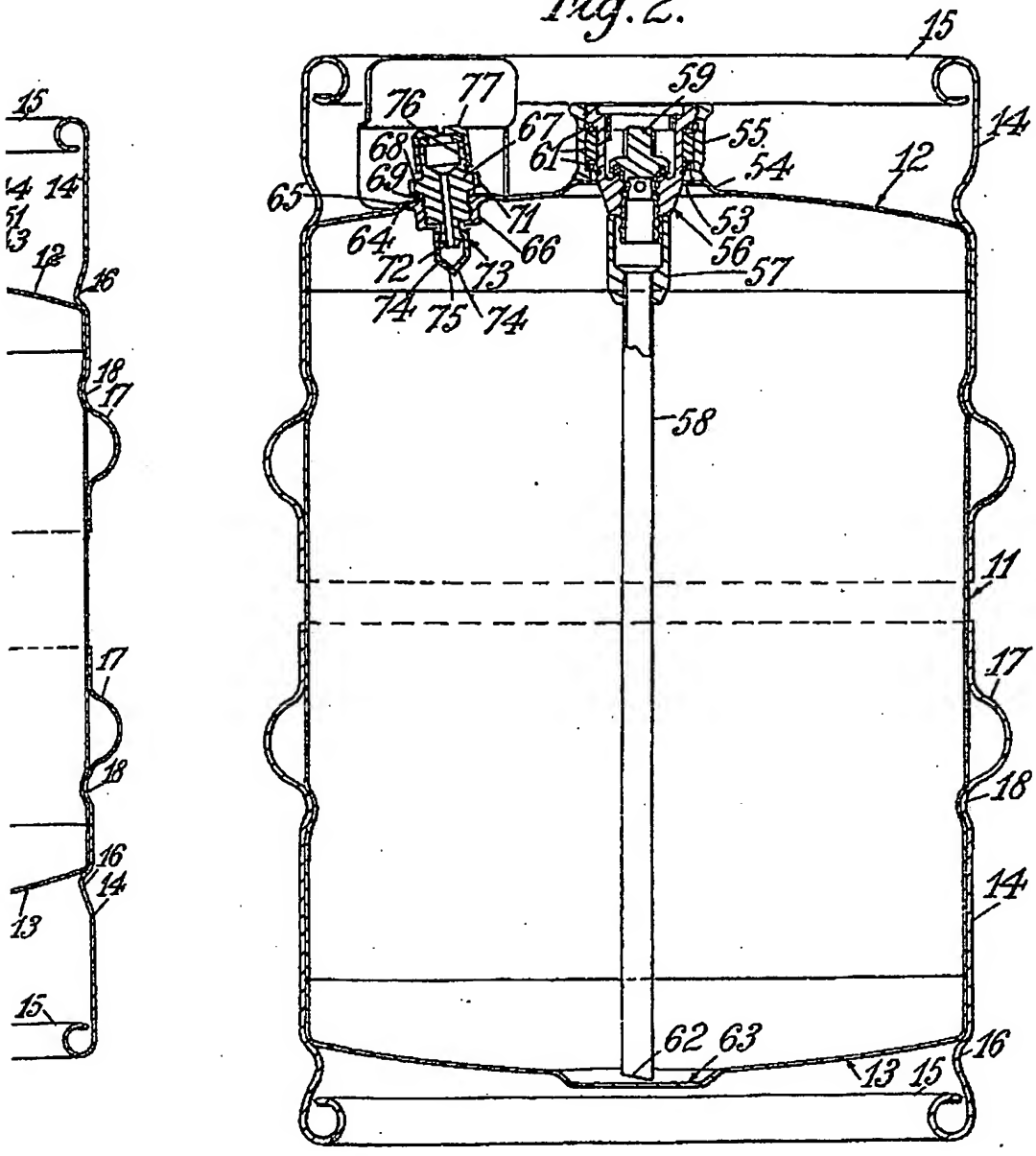
847,354 PROVISIONAL SPECIFICATION

2 SHEETS

This drawing is a reproduction of the Original on a reduced scale.

SHEETS 1 & 2

Fig. 2.



847,354 PROVISIONAL SPECIFICATION
2 SHEETS

This drawing is a reproduction of the Original on a reduced scale.
SHEETS 1 & 2

Fig. 1.

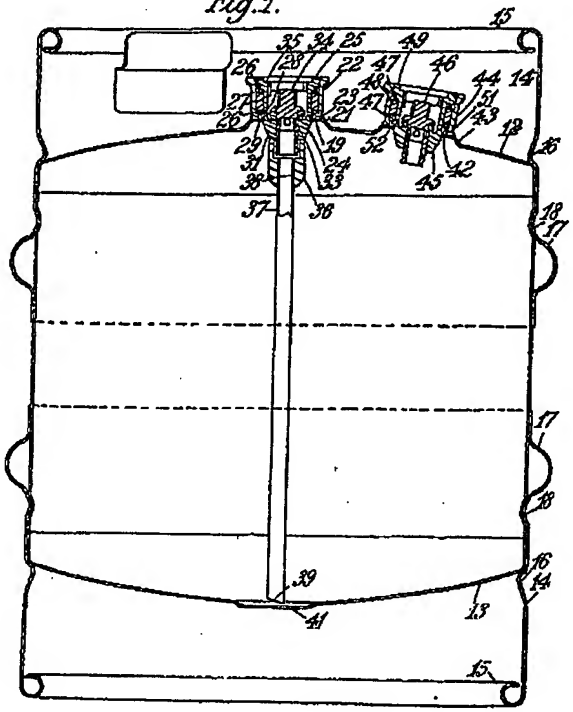


Fig. 2.

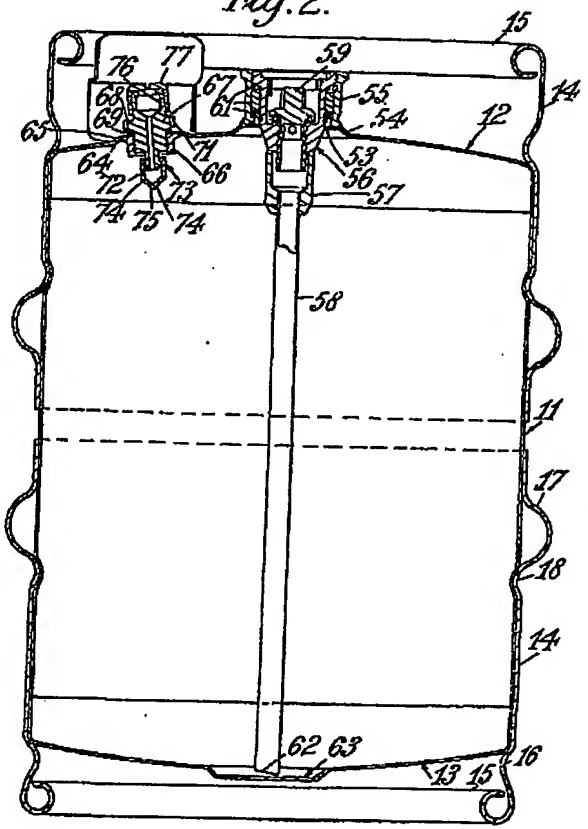


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Fig. 3.